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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re: Pat.Appn. Ser. No. 10/037,251 : Art Unit 2824

Filed 1/4/02 : Exr. L. Evanisko

Inventors Hougham et al. : Atty. Dkt. No. YOR920010020US1

For: MULTILAYER ARCHITECTURE FOR MICROCONTACT PRINTING STAMPS

TRANSMITTAL LETTER

MAILSTOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Va.22313-1450

Sir:

Transmitted herewith is the response to the 6/13/05 Office Action in the under appeal above identified application, wherein in view of the appellants' 12/24/04 Brief, prosecution has been reopened, three additional references cited and seven additional rejections have been added, and, an election required between reply to the Office 6/13/05 Office Action and a request for reinstatement of the appeal.

Reinstatement of the appeal is requested.

The rules and regulations directed to appellate briefing are understood to have undergone extensive revision and have now been published as Section 41.37 in the BNA Patent Trademark and Copyright Regulations. A replacement brief directed to all grounds in all rejections following the requirements of "41.37" is provided as part of this response. A copy of the portion of the BNA Patent Trademark and Copyright Regulations, Section 37CFR41.37 directed to the Appeal Brief contents, understood to be current to Apr .28, 2005, is provided herewith in (ix) Evidence Appendix Section A.

Respectfully transmitted,

Alvin J. Riddles 9/13/05

Alvin J. Riddles

Reg.No. 17862

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

REPLACEMENT BRIEF ON APPEAL

In this appeal of the above identified application, the required items as specified in 37CFR41.37 in paragraphs (c)(1)(i) through (c)(1)(x) in consecutive order are provided as follows.

(i) Real party in interest

The entire right title and interest in the above identified application is the property of International Business Machines Corporation of Armonk, N.Y.

(ii) Related appeals and Interferences

There are no related appeals and interferences.

(iii) Status of claims

Claims 1 - 10 here appealed, are all the elected claims in the application.

Claims 1 - 10 stand finally rejected in a 5/6/04 final rejection and claims 1 - 10 stand also rejected in a 6/13/05 prosecution reopening Office Action.

A clean copy of each elected claim is provided in (viii) Claims Appendix.

The status of each claim is as follows:

Claim 1 rejected

Claim 2 rejected

Claim 3 rejected

Claim 4 rejected

Claim 5 rejected

Claim 6 rejected

Claim 7 rejected

Claim 8 rejected

Claim 9 rejected

Claim 10 rejected

Claim 11 unelected - This claim is not involved in this appeal

Claim 12 unelected - This claim is not involved in this appeal

Claim 13 unelected - This claim is not involved in this appeal

Claim 14 unelected - This claim is not involved in this appeal

(iv) Status of Amendments

All amendments are considered to have been entered.

(v) Summary of claimed subject matter

In the fabrication of very finely patterned resilient stamping members that are to be used for the printing of seed layers of metal in the plating of patterns for electronic circuitry, situations are being encountered where being able to use multiple material properties that are not usually found in a single material, would be advantageous. For example, the surface of the stamp would have wettability properties optimized so that the liquid used as the seed material in the plating more easily wets the substrate on which the plating is to take place, the stamp must be structurally sufficiently durable with appropriate stiffness so as to maintain the integrity of the pattern being plated, and the ability to provide such properties as porosity in a specific location is useful for providing a capability to position a local fluid in the structure. Frequently in the art a situation may arise where, in a material, the optimization of one property operates to compromise another. In accordance with this invention, such material property considerations can be overcome by providing for example a multiple layer stamp with each layer providing a different desired individual property. There can be a very thin region of the stamp structure that carries the raised relief patterned features arranged in one material while the bulk or support of the stamp structure could be made of a second material having other properties.

In the following, as part of the summary of the invention, the language of each of the two independent claims 1 and 7 is correlated with the locations in the specification and drawings. A clean copy of the claims as appealed is located in (viii) Claims Appendix and a copy of the drawings is located in (ix) Evidence Appendix Section 6 (Drawings).

- | | | Drawing | Specification |
|----|--|--------------------------|--------------------------------|
| 1 | 1. In microcontact printing wherein
an electronic circuitry pattern on the surface of an | Fig. 1 at A | Page 4 line 7 |
| 2 | elastomeric stamp member is operable in a transfer
of a further processing responsive | pattern 10, | |
| 3 | material, to a surface of a substrate, | surface 11, substrate 12 | |
| 4 | the improvement comprising: | | |
| 5 | said elastomeric stamp member having a surface region | layer 13 | page 5 |
| | of a material imparting to said | | |
| 6 | stamp member at least one of the properties of
adhesion and wettability enhancement | | lines 1 - 11 |
| 7 | of the material of said circuitry pattern
to said surface region, and, | | page 6 lines 1 - 15 |
| 8 | said elastomeric stamp member further having
at least one subsurface region, each said | elements 21, 23 and 24 | |
| 9 | subsurface region being of a material imparting
a particular physical property to said | | |
| 10 | stamp member. | | |
| 1 | 7. A microcontact printing stamp, | Fig. 2 | Page 7 line 7 - page 8 line 15 |
| 2 | comprising in combination: | | |
| 3 | a body having at least a layer imparting
a bulk stiffness and flatness physical property on | | substrate 12 surface 11 |
| 4 | which there is a stamping pattern supporting surface, | 4 | |

- 5 a stamping pattern layer positioned
on said pattern supporting surface of said body
- 6 said stamping pattern layer including
a negative relief stamping pattern in which the
- 7 spaces between the features of said
stamping pattern are the positive relief embossed
- 8 portions of the final printing stamp,
- 9 said stamping pattern layer further being
of an electronic circuitry processable material
- 10 in which at least one of the physical
properties of adhesion enhancement and
- 11 wettability enhancement are imparted.

pattern 10 page 7 lines 7 - 15

page 7 line 15 - page 8 line 6

(vi) Grounds of rejection to be reviewed on appeal.

(1) There is in both the 4/24/04 final rejection and the 6/13/05 prosecution reopening rejection of claims 1 - 10 all the claims in the application, a 35USC112 rejection on the ground of indefiniteness involving the use of trademark related terminology.

With respect to the 4/24/04 final rejection there are a Maracus et al (US5,937,758) and a Fugimora (US 4,306,498) references involved.

(2) There is a 35USC102 rejection of claims 1 - 3 and 7 on the ground of anticipation by the Maracus et al reference.

(3) There is a 35USC103 rejection of claims 6 and 10 as having no unobviousness over the Maracus et al reference.

(4) There is a 35USC103 rejection of all the claims 1 - 10 on the ground of being unpatentable overthe preamble of appellants' claim 1 in view of the Fugimora (US 4,306,498) reference.

With respect to the 6/13/05 prosecution reopening there are a Blees et al(US 6,739,255) reference, a Kumar et al(US 5,512,131 reference, and a Biebuyck et al (US5,817,242) reference involved.

(5) There is a 35USC102 rejection of claims 1-5 and 7 -9 on the ground of being anticipated by the Blees et al(US 6,739,255) reference, and,

(6) There is a 35USC103 rejection of claims 6 and 10 on the ground of being unpatentable over the Blees et al(US 6,739,255) reference in view of the Kumar et al (US 5,512,131) reference.

(vii) Argument

Argument with respect to ground (1)..

Appellants position is as follows.

Appellants consider the invention to be a tool structure or stamp that is useable in the established field or art of microcontact printing or ultrafine resilient stamping. In this art the stamp tool has a stamping surface and some resiliency. The tool is used in the precision transfer of monolayer quantities of etchant resistant or seed catalysis materials.

In the rejections the use of the terms porosity and wettability are viewed as imparting indefiniteness when not defined and quantified. It is appellants' position that in this art porosity is a property useable to retain a material being transferred and that wettability is a property useable to get the material being transferred to stick to the stamp or stamped location in an available time. These properties are well known in the field, they can be enhanced or reduced without a precise measure of quantity. There is ample technical literature in the art. There are Kumer and Hilber technical articles and Maracus, Fugimura, Bruno, Blees, Brebuyck and Kumer patents of record.

Further, in the rejections there is an assertion that based on appellants' page 5, "Dow Corning Sylgard "is being used as a trademark. Appellants' page 5 line 4 specifies "The material siloxane is one example of an appropriate material for layer 13." That statement is followed by the comment "Commercially available silane material is the material known as Dow Corning Sylgard 184." In the light of examiners' comments and Kumer et al 5,512,131 Col 20 lines 65 &66 capitalization of SYLGARD should take place.

Argument with respect to ground 2 and ground 5 involving anticipation under 35USC102.

It is appellants' position that the criteria for anticipation are very precise, and fall under the rule of every limitation being involved and every limitation used in the same way. It is submitted that neither Maracus (Ground 2) nor Blees (ground 5) teaches all appellants limitations and specifically appellants claims distinguish by having superimposed layers in the stamp.

Argument with respect to ground 3 in essence that claims 6 and 10 are obvious over Maracus et al. It is submitted that Maracus in using self assembly monolayers results in a stamp with a single layer whereas appellants are distinguishing with multiple layers.

Argument with respect to ground 4. There is a missing aspect to the linkage of the information in Fugimora that has a woven backing that holds ink to the listed elements in the claim preamble. The point is how does anyone arrive at the invention other than through some type of hindsight. It is considered that the assertions are unsupported and could not lead to the invention.

Argument to ground 6. The assumption that simply because Kumer advances the existence of a material does not assure that it would occur to one skilled in the art to use it in a certain way or in a certain place. Such an assumption is pure hindsight.

It is appellants' position that vital distinguishing limitations have not been considered in the application of the references and it is a well established principle of claim interpretation that all limitations must be given full consideration as exemplified by the holdings in such decisions as (

- 1) In Re Geerdes, (2) Kropa v Robie & Malman and (3) Ex Parte Levengood.

It is appellants' position that the general state of the art is that while stamp tools are available in the art the concept of having the advantages of superimposed property imparting layers in a stamp has not appeared heretofore.

It is respectfully urged that the claims are simple structure in this art, that they distinguish over the art yet they convey the novel concept and that concept can be practiced through the structural terminology used in the claims as they are.

(x) Related Proceedings Appendix

There are no known related proceedings

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Alvin J. Riddles 9/13/05".

Alvin J. Riddles
Reg. No. 17862

1. In microcontact printing wherein an electronic circuitry pattern on the surface of an elastomeric stamp member is operable in a transfer of a further processing responsive material, to a surface of a substrate,
 - 4 the improvement comprising:
 - 5 said elastomeric stamp member having a surface region of a material imparting to said stamp member at least one of the properties of adhesion and wettability enhancement of the material of said circuitry pattern to said surface region, and,
 - 8 said elastomeric stamp member further having at least one subsurface region, each said subsurface region being of a material imparting a particular physical property to said stamp member.
- 1 2. The microcontact improvement of claim 1 wherein said at least one subsurface region, is a single region that imparts the bulk property of stiffness to said stamp member.
- 1 3. The microcontact improvement of claim 1 wherein said at least one subsurface region, is a single region that imparts the bulk property of wettability enhancement to said stamp member.

1 4. The microcontact printing improvement of claim 2 wherein another region of said at
2 least one subsurface regions, imparts the property of porosity, and is positioned between
3 said surface region and said stiffness bulk property imparting region.

1 5. The microcontact printing improvement of claim 3 wherein another region of said at
2 least one subsurface regions, imparts the property of porosity, and is positioned between
3 said surface region and said wettability enhancement bulk property imparting region.

1 6 .The microcontact printing improvement of claim 2 wherein said surface region is of the
2 material known as Dow Corning Sylgard siloxane 184 and said subsurface region is of
3 the material known as Dow Corning Sylgard siloxane 186.

1 7. A microcontact printing stamp,
2 comprising in combination :
3 a body having at least a layer imparting a bulk stiffness and flatness physical property on
4 which there is a stamping pattern supporting surface,
5 a stamping pattern layer positioned on said pattern supporting surface of said body,
6 said stamping pattern layer including a negative relief stamping pattern in which the
7 spaces between the features of said stamping pattern are the positive relief embossed
8 portions of the final printing stamp,
9 said stamping pattern layer further being of an electronic circuitry processable material
10 in which at least one of the physical properties of adhesion enhancement and
11 wettability enhancement are imparted.

- 1 8. The microcontact printing stamp member of claim 7 including a further layer
2 of a specific physical property imparting material positioned between said stamping
3 pattern layer and said layer of bulk stiffness and wettability enhancement physical
4 property imparting material.

- 1 9. The microcontact printing stamp member of claim 8 wherein said physical property
2 imparted by said layer of a specific physical property imparting material is the physical
3 property of porosity.

- 1 10. The microcontact printing stamp of claim 7 wherein said layer of a bulk stiffness and
2 wettability enhancement physical property imparting material, is the material known as
3 Dow Corning Sylgard siloxane 186 and the material of said stamping pattern layer is of
4 the material known as Dow Corning Sylgard siloxane 184.

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PATENT, TRADEMARK, AND COPYRIGHT REGULATIONS

- (b) On failure to file the brief, accompanied by the requisite fee, within the period specified in paragraph (a) of this section, the appeal will stand dismissed.
- (c) (i) The brief shall contain the following items under appropriate headings and in the order indicated in paragraphs (c)(1)(i) through (c)(1)(x) of this section, except that a brief filed by an appellant who is not represented by a registered practitioner need only substantially comply with paragraphs (c)(1)(i) through (c)(1)(iv) and (c)(1)(vi) through (c)(1)(x) of this section:
- (i) *Real party in interest.* A statement identifying by name the real party in interest.
 - (ii) *Related appeals and interferences.* A statement identifying by application, patent, appeal or interference number all other prior and pending appeals, interferences or judicial proceedings known to appellant, the appellant's legal representative, or assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. Copies of any decisions rendered by a court or the Board in any proceeding identified under this paragraph must be included in an appendix as required by paragraph (c)(1)(x) of this section.
 - (iii) *Status of claims.* A statement of the status of all the claims in the proceeding (e.g., rejected, allowed or confirmed, withdrawn, objected to, canceled) and an identification of those claims that are being appealed.
 - (iv) *Status of amendments.* A statement of the status of any amendment filed subsequent to final rejection.
 - (v) *Summary of claimed subject matter.* A concise expression of the subject matter defined in each of the independent claims involved in the appeal, which shall refer to the specification by page and line number, and to the drawing, if any, by reference characters. For each independent claim involved in the appeal and for each dependent claim argued separately under the provisions of paragraph (c)(1)(vii) of this section, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference characters.
 - (vi) *Gounds of rejection to be reviewed on appeal.* A concise statement of each ground of rejection presented for review.
 - (vii) *Arguments.* The contentions of appellant with respect to each ground of rejection presented for review in paragraph (c)(1)(vi) of this section, and the basis therefor, with citations of the statutes,

regulations, authorities, and parts of the record relied on. Any arguments or authorities not included in the brief or a reply brief filed pursuant to §41.41 will be refused consideration by the Board, unless good cause is shown. Each ground of rejection must be treated under a separate heading. For each ground of rejection applying to two or more claims, the claims may be argued separately or as a group. When multiple claims subject to the same ground of rejection are argued as a group by appellant, the Board may select a single claim from the group of claims that are argued together to decide the appeal with respect to the group of claims as to the ground of rejection on the basis of the selected claim alone. Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately. Any claim argued separately should be placed under a subheading identifying the claim by number. Claims argued as a group should be placed under a subheading identifying the claims by number. A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.

(viii) *Claims appendix:* An appendix containing a copy of the claims involved in the appeal.

(ix) *Evidence appendix:* An appendix containing copies of any evidence submitted pursuant to §§1.130, 1.131, or 1.132 of this title or of any other evidence entered by the examiner and relied upon by appellant in the appeal, along with a statement setting forth where in the record that evidence was entered in the record by the examiner. Reference to unentered evidence is not permitted in the brief. See §41.33 for treatment of evidence submitted after appeal. This appendix may also include copies of the evidence relied upon by the examiner as to grounds of rejection to be reviewed on appeal.

(x) *Related proceedings appendix:* An appendix containing copies of decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of this section.

(2) A brief shall not include any new or non-admitted amendment, or any new or non-admitted affidavit or other evidence. See §1.116 of this title for amendments, affidavits or other evidence filed after final action but before or on the same date of filing an appeal and §41.33 for amendments, affidavits or other evidence filed after the date of filing the appeal.

(d) If a brief is filed which does not comply with all the requirements of paragraph (c) of this section, appellant will be notified of the reasons for non-compliance and given a time period within which to file an amended brief. If

appellant does not file an amended brief within the set time period, or files an amended brief which does not overcome all the reasons for non-compliance stated in the notification, the appeal will stand dismissed.

(e) The time periods set forth in this section are extendable under the provisions of §1.136 of this title for patent applications and §1.550(c) of this title for ex parte reexamination proceedings.

§ 41.39 Examiner's answer.

(a) (1) The primary examiner may, within such time as may be directed by the Director, furnish a written answer to the appeal brief indicating such explanation of the invention claimed and of the references relied upon and grounds of rejection as may be necessary, supplying a copy to appellant. If the primary examiner determines that the appeal does not comply with the provisions of §§41.31 and 41.37 or does not relate to an appealable action, the primary examiner shall make such determination of record.

(2) An examiner's answer may include a new ground of rejection.

(b) If an examiner's answer contains a rejection designated as a new ground of rejection, appellant must within two months from the date of the examiner's answer exercise one of the following two options to avoid an automatic dismissal of the appeal as to the claims subject to the new ground of rejection:

(1) *Reopen prosecution.* Request that prosecution be reopened before the primary examiner by filing a reply under §1.111 of this title with or without amendment or submission of affidavits (§§ 1.130, 1.131 or 1.132 of this title) or other evidence. Any amendment or submission of affidavits or other evidence must be relevant to the new ground of rejection. A request that complies with this paragraph will be entered and the application or the patent under ex parte reexamination will be reconsidered by the examiner under the provisions of §1.112 of this title. Any request that prosecution be reopened under this paragraph will be treated as a request to withdraw the appeal.

(2) *Maintain appeal.* Request that the appeal be maintained by filing a reply brief as set forth in §41.41. Such a reply brief must address each new ground of rejection as set forth in § 41.37(e)(1)(vii) and should follow the other requirements of a brief as set forth in §41.37(e). A reply brief may not be accompanied by any amendment, affidavit (§§1.130, 1.131 or 1.132 of this title) or other evidence. If a reply brief filed pursuant to this section is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under paragraph (b)(1) of this section.

(c) Extensions of time under §1.136(a) of this title for patent applications are not applicable to the time period set forth in this section. See §1.136(b) of this title.

FIG. 1

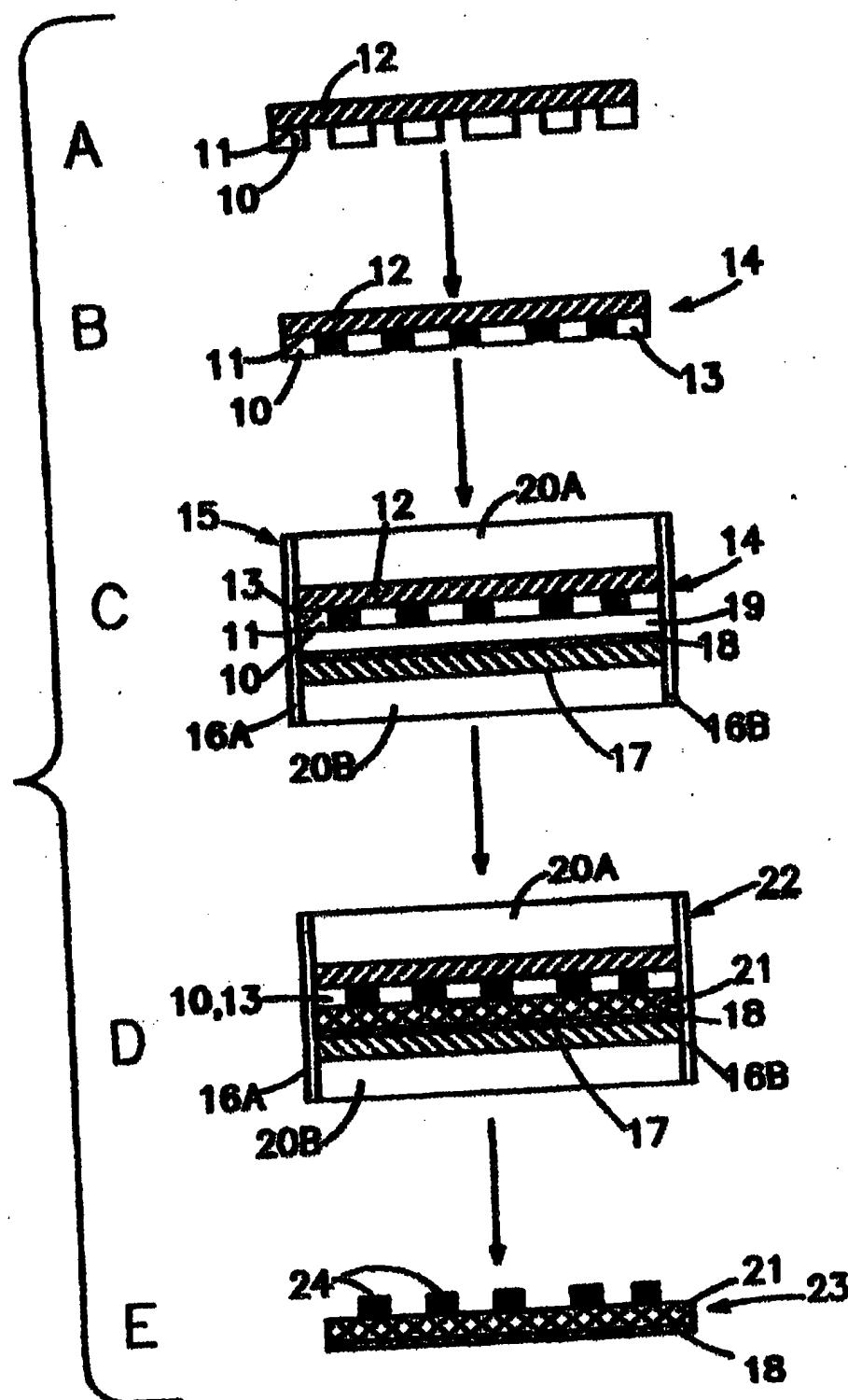


FIG. 2

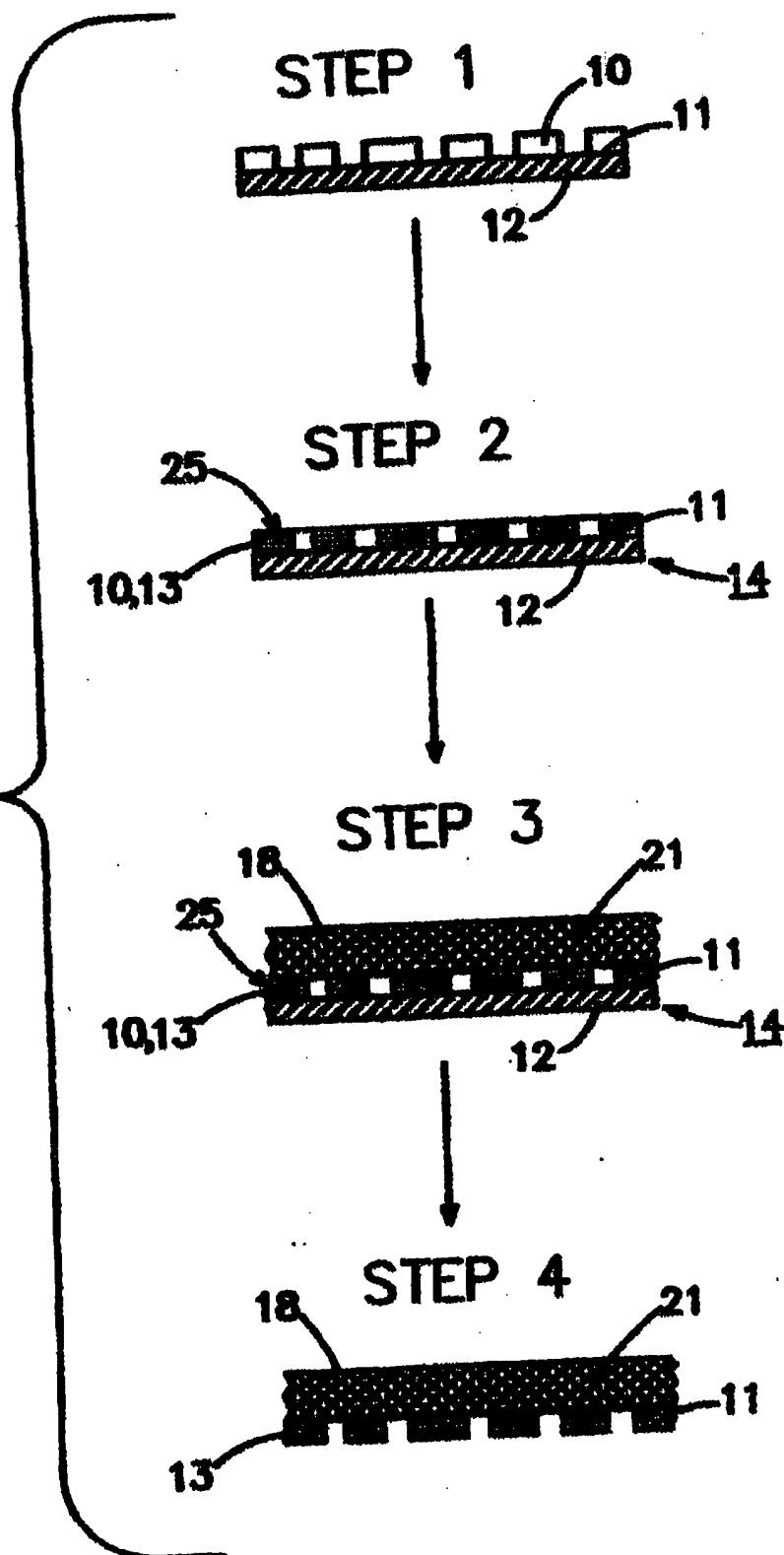
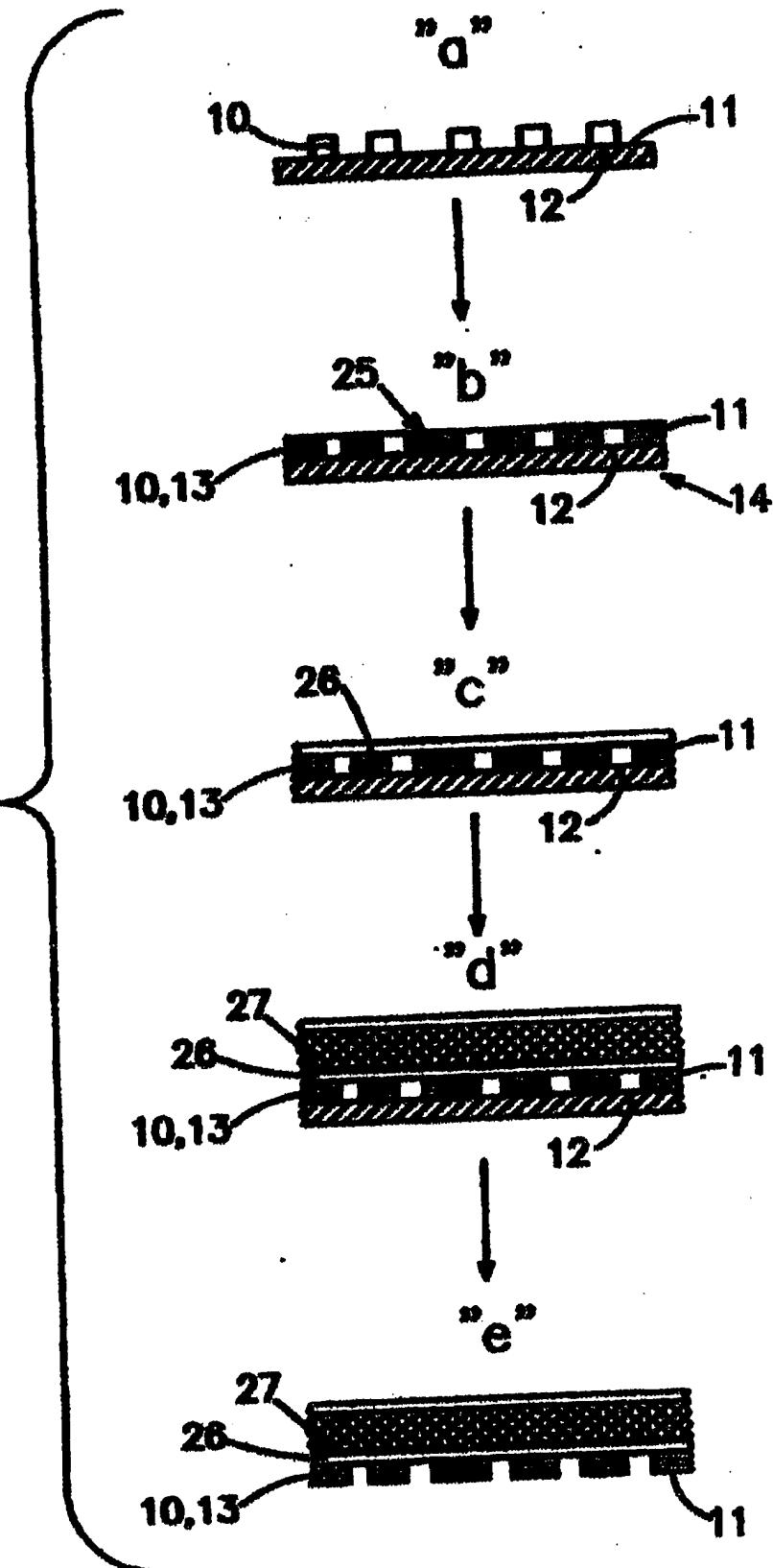


FIG. 3



(ix) Evidence Appendix Section "C" Table of Citations

1. In Re Geerdes 180USPQ 789 (1974)
2. Kropa v Robie and Mahlman 88USPQ 478 (1951)
3. Ex Parte Levengood 28USPQ2d1300 (CAFC 1993)

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